

Usage Scenario

Introduction

TestCube is a cloud based test case generator that will generate and execute test cases for given java source code. It will generate test cases using Randoop and a machine learning based solution developed by us. It will store the input codes given by users and the results generated for it.

Sign Up

To start using our tools, users first have to sign up. In order to sign up, users have to provide their Full-Name, Username, valid Email and a valid password. Both the username and the email must be unique for each account. Passwords must be 6 letters and must have at least one special character in it. Upon giving a unique email id, the users will be sent an OTP to verify their account creation.

Log in

In order to login, users have to provide their account's username or email and their password.

Upload Code

Users will upload the code they want to generate test cases for. They can also upload the expected behavior of the code in JSON format, if they want to reveal whether the method behaves as expected for generated test cases.

Set Test Criteria

Users can choose which tool(s) they want to use among our machine learning based solutions and randoop. Users can also set the ranges of

the test cases to be generated. They can choose to turn off auto execution using the generated test cases, which will be turned on by default.

Test Case Generation

After taking the input, **TestCube** will use the selected tool(s) and generate test cases for the given java source code. If a user sets a range of test cases to be generated, the tool(s) will generate test cases within that range.

Test Case Execution and Report Generation

By default **TestCube** will automatically execute the test cases it generates. However, users can choose to turn this feature off. If auto-execution is not disabled, TestCube will execute the generated test cases and it will make a report. The report will contain information about the executions. It will show if there was any error or warnings during execution. The test cases triggering the error/warning will be specified. If expected behavior of the code is given, the report will contain test cases that cause the code to not work as expected. However, if the user turns auto execution of test cases off, then **TestCube** will not execute the test cases, it will only output the user generated test cases.

View and Download Results

After generating test cases and executing them (if auto-execution is not disabled), TestCube will output the users all the generated test cases and reports. Users can view the test cases and reports and they will also have the option to download them.

Store and Show Generated Cases

All the input codes, generated test cases and reports will automatically be stored in the database. In the event that any user wants to view previous codes and all the results associated with it, they will have the option to do so. For that, users have to select which code they want to view and the server will bring all the information stored about that code from the database. Users can download their codes and generated test cases, reports associated with the codes whenever they want.

Re-run The Model

All the source codes and test cases that are stored in the database will be used to train the machine learning model. The model will train automatically using the provided source codes and generated test cases in a 60 days interval.